Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the above-identified application:

Listing of Claims:

1.-6. (Cancelled)

7. (Withdrawn) An adaptive digital signal weighting system for use with a digitally represented difference signal representing the difference between two stereophonic audio signals, the system including a signal path for transmitting an electrical information signal containing information relating to the difference signal of a predetermined bandwidth through said system at a predetermined sample rate so as to preserve the signal content of said information signal, said system further comprising:

a digital filter arrangement disposed in said signal path and constructed and arranged so as to vary the gain impressed on the portion of said information signal within a first select spectral region within said predetermined bandwidth by a first variable gain factor, said first variable gain factor varying in response to and as a function of a first control signal;

a first control signal generator constructed and arranged so as to digitally generate said first control signal only in response to and in accordance with the signal energy of said digitally represented difference signal within a second select spectral region including at least a part of said first select spectral region;

a digital gain controller, disposed in said signal path and coupled to said digital filter arrangement, and constructed and arranged so as to vary the signal gain impressed on said information signal substantially throughout said predetermined bandwidth by a second variable gain factor, said second variable gain factor varying in response to and as a function of a second control signal; and

a second control signal generator constructed and arranged so as to digitally generate said second control signal in response to and as a function of the signal energy of said digitally represented difference signal substantially within a third select spectral region within said predetermined bandwidth;

wherein the digital filter arrangement, first control signal generator, digital gain controller, and the second control signal generator each operate at a predetermined sample rate so as to preserve the signal content of the information signal, and the sampling rate is chosen so as to be equal to an integer multiple of the frequency of a pilot tone that can be added to the difference signal to identify the encoded signal to a receiver.

8. (Withdrawn) A digital system for encoding an electrical information signal of a predetermined bandwidth at a predetermined sample rate so as to preserve the signal content of said information and so that said information signal can be recorded on or transmitted through a channel with a frequency dependent dynamic range as an encoded difference signal representing the difference between two stereophonic audio signals, the channel having a narrower dynamically-limited portion in a first spectral region than in at least one other spectral region of said predetermined bandwidth, said system comprising:

an input constructed and arranged so as to receive said information signal;

a signal transmission path, coupled to said input and constructed and arranged so as to transmit said information signal received at said input;

an output coupled to said input through said signal transmission path for providing said information signal as encoded by said system;

a digital gain controller coupled to said signal path for varying the signal gain impressed on said information signal substantially throughout said predetermined bandwidth, said signal gain varying in response to and as a function of a first control signal;

a digital filter arrangement, coupled to said signal path and said digital gain controller, and constructed and arranged so as to impress a second variable gain on the portion of said information signal substantially within said first spectral region so as to preemphasize said portion with respect to the remaining portions of said information signal, said second variable gain varying in response to and as a function of a second control signal;

a first control signal generator constructed and arranged so as to digitally generate said first control signal in response to and as a function of the signal energy of said information signal substantially within a second spectral region of said predetermined bandwidth; and

a second control signal generator constructed and arranged so as to digitally generate said second control signal only in response to and in accordance with the signal energy of said information signal within a third spectral region of said predetermined bandwidth including at least a part of said first spectral region;

wherein the digital gain controller, said digital filter arrangement, said first control signal generator and said second control signal generator each operate at a predetermined sample rate so as to preserve the signal content of said information signal, and the sampling rate is chosen so as to be equal to an integer multiple of the frequency of a pilot tone that can be added to the encoded signal to identify the encoded signal to a receiver.

9. (Withdrawn) An adaptive digital signal weighting system for use with a digitally represented difference signal representing the difference between two stereophonic audio signals, the system comprising:

a signal path for transmitting an electrical information signal of a predetermined bandwidth through said system;

a variable coefficient digital filter arrangement (a) constructed and arranged so as to filter said information signal, the filter arrangement being characterized by a variable coefficient transfer function, and (b) constructed and arranged so as to vary the gain impressed on the portion of said information signal within a first select spectral region within said predetermined

bandwidth by a first variable gain factor, the variable coefficients of said variable coefficient transfer function and said first variable gain factor varying in response to and as a function of a first control signal;

a first control signal generator constructed and arranged so as to digitally generate said first control signal only in response to and in accordance with the signal energy of said information signal within a second select spectral region including at least a part of said first select spectral region;

a digital gain controller disposed in said signal path and coupled to said variable coefficient digital filter arrangement, and constructed and arranged so as to vary the signal gain impressed on said information signal substantially throughout said predetermined bandwidth by a second variable gain factor, said second variable gain factor varying in response to and as a function of a second control signal; and

a second control signal generator constructed and arranged so as to digitally generate said second control signal in response to and as a function of the signal energy of said information signal substantially within a third select spectral region within said predetermined bandwidth;

wherein the digital filter arrangement, first control signal generator, digital gain controller and second control signal generator each operate at a predetermined sample rate so as to preserve the signal content of said information signal, and the sampling rate is chosen so as to be equal to an integer multiple of the frequency of a pilot tone that can be added to the difference signal to identify the difference signal to a receiver.

10.-48. (Cancelled)

49. (Withdrawn) A system according to claim 7, wherein the pilot frequency is substantially 15,734 Hz.

50. (Withdrawn) A system according to claim 7, wherein DC signal energy is absent from the signal content of the information signal so as to prevent ticking.

51. (Withdrawn) A system according to claim 8, wherein the pilot frequency is substantially 15,734 Hz.

52. (Withdrawn) A system according to claim 8, wherein DC signal energy is absent from the signal content of the information signal so as to prevent ticking.

53. (Withdrawn) A system according to claim 9, wherein the pilot frequency is substantially 15,734 Hz.

54. (Withdrawn) A system according to claim 9, wherein DC signal energy is absent from the signal content of the information signal so as to prevent ticking.

55. (Withdrawn) A digital implementation of an analog adaptive [digital] signal weighting system for use with a digitally represented difference signal representing the difference between two stereophonic audio signals, the system including a signal path for transmitting an electrical information signal containing information relating to the difference signal of a predetermined bandwidth through said system, said analog adaptive [digital] weighting system being of the type including first analog control signal generator including a first analog filter component and a second analog control signal generator including a second analog filter component, said digital implementation further comprising:

a digital filter arrangement disposed in said signal path and constructed and arranged so as to vary the gain impressed on the portion of said information signal within a first select spectral region within said predetermined bandwidth by a first variable gain factor, said first variable gain factor varying in response to and as a function of a first control signal;

a first digital control signal generator constructed and arranged so as to digitally generate said first control signal only in response to and in accordance with the signal energy of said digitally represented difference signal within a second select spectral region including at least a part of said first select spectral region, said first digital control signal generator including a first digital filter component having an amplitude response such that the difference between the

amplitude response of the first digital filter component and the amplitude response of the first analog filter component is minimized irrespective of their respective phase responses;

a digital gain controller, disposed in said signal path and coupled to said digital filter arrangement, and constructed and arranged so as to vary the signal gain impressed on said information signal substantially throughout said predetermined bandwidth by a second variable gain factor, said second variable gain factor varying in response to and as a function of a second control signal;

a second digital control signal generator constructed and arranged so as to digitally generate said second control signal in response to and as a function of the signal energy of said digitally represented difference signal substantially within a third select spectral region within said predetermined bandwidth, said second digital control signal generator including a second digital filter component having an amplitude response such that the difference between the amplitude response of the second digital filter component and the amplitude response of the second analog filter component is minimized irrespective of their respective phase responses; and

wherein the digital filter arrangement, first control signal generator, digital gain controller, and the second control signal generator each operate at a predetermined sample rate so as to preserve the signal content of the information signal.

56. (Withdrawn) A digital implementation according to claim 55, wherein said first digital filter component comprises a spectral bandpass filter.

57. (Withdrawn) A digital implementation according to claim 55, wherein the first digital filter component comprises an IIR filter.

58. (Withdrawn) A digital implementation according to claim 55, wherein the first digital filter component comprises a cascade of IIR filters.

59. (Withdrawn) A digital implementation according to claim 55, wherein said second digital filter component comprises an IIR filter.

60. (Previously Presented) A system for generating a broadcast television stereo signal from a left-channel signal and a right-channel signal, comprising:

an analog-to-digital converter arrangement configured so as to convert the right-channel signal to a right digital signal and convert the left-channel signal to a left digital signal;

a signal combiner arrangement coupled to the analog-to-digital converter arrangement and configured so as to generate a summation signal comprising the sum of the right digital signal and the left digital signal, and generate a difference signal comprising the difference between the right digital signal and the left digital signal;

a sum and difference signal generator arrangement configured so as to generate a first pre-emphasized digital signal as a function of the summation signal, and a second pre-emphasized digital signal as a function of the difference signal;

a signal transformation arrangement configured so as to transform the first pre-emphasized digital signal to a digital BTSC compliant L+R signal, and transform the second pre-emphasized digital signal to a digital BTSC compliant L-R signal;

a digital-to-analog converter arrangement configured to convert the digital BTSC compliant L+R signal to an analog BTSC compliant L+R signal, and the digital BTSC compliant L-R signal to an analog BTSC compliant L-R signal; and

a composite signal generator arrangement configured so as to generate a composite signal as a function of the combination of the analog BTSC compliant L+R signal and a modulated version of the analog BTSC compliant L-R signal.

61. (Previously Presented) The system according to claim 60, wherein the sum and difference signal generator arrangement comprises a digital signal processor arrangement programmed to digitally add pre-emphasis to each of the summation and difference signals.

62. (Previously Presented) The system according to claim 60, wherein the signal transformation arrangement comprises an L-R data path and an L+R data path, each path having a preselected sample rate.

63. (Previously Presented) A method of generating a broadcast television stereo signal from a left-channel signal and a right-channel signal, comprising:

converting the right-channel signal to a right digital signal and converting the left-channel signal to a left digital signal;

generating a summation signal comprising the sum of the right digital signal and the left digital signal, and generating a difference signal comprising the difference between the right digital signal and the left digital signal;

generating a first pre-emphasized digital signal as a function of the summation signal, and generating a second pre-emphasized digital signal as a function of the difference signal;

transforming the first pre-emphasized digital signal to a digital BTSC compliant L+R signal and transforming the second pre-emphasized digital signal to a digital BTSC compliant L-R signal;

converting the digital BTSC compliant L+R signal to an analog BTSC compliant L+R signal, and converting the digital BTSC compliant L-R signal to an analog BTSC compliant L-R signal; and

generating a composite signal as a function of a combination of the analog BTSC compliant L+R signal and a modulated version of the analog BTSC compliant L-R signal.

64. (Previously Presented) The method according to claim 63, further comprising:

generating a modulated version of the analog BTSC compliant L-R signal after converting the digital BTSC L-R signal to an analog BTSC compliant L-R signal.

65. (Previously Presented) The method according to claim 63, wherein the step of generating the first pre-emphasized digital signal and generating the second pre-emphasized digital signal comprises:

using a programmed digital signal processor arrangement to digitally add pre-emphasis to each of the summation and difference signals.

66. (Previously Presented) The method according to claim 63, wherein the step of transforming the first pre-emphasized signal and transforming the second pre-emphasized signal comprises:

sampling the first pre-emphasized signal at a first preselected sample rate, and sampling the second pre-emphasized signal at a second preselected sample rate.

67. (Currently Amended) [[The]] A method of generating a broadcast television stereo signal from a left-channel signal and a right-channel signal, comprising:

converting the right-channel signal to a right digital signal;

converting the left-channel signal to a left digital signal;

generating a summation signal comprising the sum of the right digital signal and the left digital signal;

generating a difference signal comprising the difference between the right digital signal and the left digital signal;

generating a first pre-emphasized digital signal corresponding to the summation signal;

generating a second pre-emphasized digital signal corresponding to the difference signal;

transforming the first pre-emphasized digital signal to a digital BTSC compliant L+R signal;

transforming the second pre-emphasized digital signal to a digital BTSC compliant L-R signal;

converting the digital BTSC compliant L+R signal to an analog BTSC compliant L+R signal;

converting the digital BTSC compliant L-R signal to an analog BTSC compliant L-R signal; and

generating a composite signal as a function of a combination of the analog BTSC compliant L+R signal with a modulated version of the analog BTSC compliant L-R signal.

68. (Previously Presented) The method according to claim 67, further comprising:

generating a modulated version of the analog BTSC compliant L-R signal after converting the digital BTSC compliant L-R signal to an analog BTSC compliant L-R signal.

69. (Previously Presented) A system for generating a broadcast television stereo signal from a left-channel signal and a right-channel signal, comprising:

an analog-to-digital converter arrangement configured so as to convert the right-channel signal to a right digital signal and convert the left-channel signal to a left digital signal;

a signal combiner arrangement coupled to the analog-to-digital converter arrangement and configured so as to generate a summation signal comprising the sum of the right digital signal and the left digital signal, and generate a difference signal comprising the difference between the right digital signal and the left digital signal;

a sum and difference signal generator arrangement configured so as to generate a first pre-emphasized digital signal as a function of the summation signal, and a second pre-emphasized digital signal as a function of the difference signal;

a signal transformation arrangement configured so as to transform the first pre-emphasized digital signal to a digital BTSC compliant L+R signal, and transform the second pre-emphasized digital signal to a digital BTSC compliant L-R signal;

a composite signal generator arrangement configured so as to generate a digital composite signal as a function of the combination of the digital BTSC compliant L+R signal and a modulated version of the digital BTSC compliant L-R signal; and

a digital-to-analog converter arrangement configured to convert the digital composite signal to an analog composite signal.

70. (Previously Presented) The system according to claim 69, wherein the sum and difference signal generator arrangement comprises a digital signal processor arrangement programmed to digitally add pre-emphasis to each of the summation and difference signals.

71. (Previously Presented) The system according to claim 69, wherein the signal transformation arrangement comprises an L-R data path and an L+R data path, each path having a preselected sample rate.

72. (Previously Presented) A method of generating a broadcast television stereo signal from a left-channel signal and a right-channel signal, comprising:

converting the right-channel signal to a right digital signal and converting the left-channel signal to a left digital signal;

generating a summation signal comprising the sum of the right digital signal and the left digital signal, and generating a difference signal comprising the difference between the right digital signal and the left digital signal;

generating a first pre-emphasized digital signal as a function of the summation signal, and generating a second pre-emphasized digital signal as a function of the difference signal;

transforming the first pre-emphasized digital signal to a digital BTSC compliant L+R signal and transforming the second pre-emphasized digital signal to a digital BTSC compliant L-R signal;

generating a digital composite signal as a function of a combination of the digital BTSC compliant L+R signal and a modulated version of the digital BTSC compliant L-R signal; and

converting the digital composite signal to an analog composite signal.

73. (Previously Presented) The method according to claim 72, further comprising:

generating a modulated version of the digital BTSC compliant L-R signal before converting the digital composite signal to an analog composite signal.

74. (Previously Presented) The method according to claim 72, wherein generating the first pre-emphasized digital signal and generating the second pre-emphasized digital signal comprises:

using a programmed digital signal processor arrangement to digitally add pre-emphasis to each of the summation and difference signals.

75. (Previously Presented) The method according to claim 72, wherein transforming the first pre-emphasized digital signal and transforming the second pre-emphasized digital signal comprises:

sampling the first pre-emphasized digital signal at a first preselected sample rate, and sampling the second pre-emphasized digital signal at a second preselected sample rate.

76. (Previously Presented) The method of generating a broadcast television stereo signal from a left-channel signal and a right-channel signal, comprising:

converting the right-channel signal to a right digital signal;

converting the left-channel signal to a left digital signal;

generating a summation signal comprising the sum of the right digital signal and the left digital signal;

generating a difference signal comprising the difference between the right digital signal and the left digital signal;

generating a first pre-emphasized digital signal corresponding to the summation signal;

generating a second pre-emphasized digital signal corresponding to the difference signal;

transforming the first pre-emphasized digital signal to a digital BTSC compliant L+R signal;

transforming the second pre-emphasized digital signal to a digital BTSC compliant L-R signal;

generating a digital composite signal as a function of a combination of the digital BTSC compliant L+R signal with a modulated version of the digital BTSC compliant L-R signal; and

converting the digital composite signal to an analog composite signal.

77. (Previously Presented) The method according to claim 76, further comprising:

generating a modulated version of the digital BTSC compliant L-R signal before generating the digital composite signal.

78. (Previously Presented) A digital signal processor arrangement for use in generating a broadcast television BTSC encoded stereo signal from a left-channel signal and a right-channel signal, comprising:

a signal generator arrangement configured so as to generate a digital summation signal as a function of the sum of the left-channel and right-channel signals, and a digital difference signal as a function of the difference between the left-channel and right-channel signals;

a summation signal processing arrangement including a filter arrangement configured to filter the digital summation signal so as to produce a conditioned digital summation signal;

a difference signal processing arrangement including a pre-emphasis filter arrangement and a signal compressor arrangement, the filter and signal compressor arrangements being configured so as to condition and compress the digital difference signal so as to produce a conditioned digital difference signal;

a digital-to-analog converter arrangement for converting the conditioned digital summation signal to an analog sum signal, and the conditioned digital difference signal to an analog difference signal; and

a signal combiner arrangement configured so as to combine the analog sum signal with a modulated version of the analog difference signal.

79. (Previously Presented) An arrangement in accordance with claim 78, wherein the filter arrangement of the summation signal processing arrangement is configured so as to filter the digital summation signal with a 75μs pre-emphasis so as to produce a conditioned digital summation signal.

80. (Previously Presented) A digital signal processor arrangement for use in generating a broadcast television BTSC encoded stereo signal from a left-channel signal and a right-channel signal, comprising:

a signal generator arrangement configured so as to generate a digital summation signal as a function of the sum of the left-channel and right-channel signals, and a digital difference signal as a function of the difference between the left-channel and right-channel signals;

a summation signal processing arrangement including a filter arrangement configured to filter the digital summation signal so as to produce a conditioned digital summation signal;

a difference signal processing arrangement including a pre-emphasis filter arrangement and a signal compressor arrangement, the filter and compressor arrangements being configured

so as to condition and compress the digital difference signal so as to produce a conditioned digital difference signal;

a signal combiner arrangement configured so as to combine the conditioned digital summation signal with a modulated version of the conditioned digital difference signal so as to generate a composite modulated signal; and

a digital-to-analog converter arrangement for converting the composite modulated signal to an analog output signal.

81. (Previously Presented) An arrangement in accordance with claim 80, wherein the filter arrangement of the summation signal processing arrangement is configured so as to filter the digital summation signal with a 75μs pre-emphasis so as to produce a conditioned digital summation signal.

82. (Previously Presented) A method of digitally encoding left and right channel audio signals in accordance with the BTSC standard, comprising:

providing digital left and digital right channel audio signals;

combining the digital left and digital right channel audio signals to form a digital sum signal and a digital difference signal; and

encoding the digital sum signal and the digital difference signal according to the BTSC standard so as to produce a digital BTSC signal.

83. (Previously Presented) A method of digitally encoding left and right channel audio signals according to claim 82, wherein providing digital left and digital right channel audio signals includes receiving analog left and right channel audio signals and digitizing the analog left and right channel audio signals so as to produce the digital left and right channel audio signals.

84. (Previously Presented) A method of digitally encoding left and right channel audio signals according to claim 82, wherein encoding the digital sum signal and the digital difference signal according to the BTSC standard includes encoding the digital sum channel with an applied 75μs preemphasis.

85. (Previously Presented) A method of digitally encoding left and right channel audio signals according to claim 82, wherein encoding the digital sum signal and the digital difference signal according to the BTSC standard includes encoding the digital difference signal with an adaptive signal weighting system.

86. (Previously Presented) A digital signal processor for producing a signal encoded according to the BTSC standard, said digital signal processor comprising:

A) an input section constructed and arranged so as to (1) receive digital left and digital right audio signals and (2) combine the digital left and digital right audio signals so as to form a digital sum signal and a digital difference signal;

B) a difference channel processing section constructed and arranged so as to encode the digital difference signal according to the BTSC standard; and

C) a sum channel processing section constructed and arranged so as to condition the digital sum signal according to the BTSC standard.

87. (Previously Presented) A system for producing a digital composite modulated BTSC signal comprising a digital BTSC encoder arranged so as to generate a digital BTSC encoded signal, and a digital composite modulator.

88. (Previously Presented) A method of generating a digital composite modulated BTSC signal, comprising:

generating digital left and digital right channel audio signals,

combining said digital left and digital right channel audio signals so as to form a digital sum signal and a digital difference signal,

encoding the digital sum signal and digital difference signal according to the BTSC standard so as to produce a digital BTSC signal, and

modulating the digital BTSC signal so as to produce a digital composite modulated BTSC signal.

89. (Previously Presented) A circuit for encoding digital left and digital right audio signals according to the BTSC standard, comprising:

a digital matrix unit configured to generate a digital sum channel signal and a digital difference channel signal;

a sum channel processing unit; and

a difference channel processing unit;

wherein said sum channel processing unit is configured to produce a conditioned digital sum channel signal in response to the digital sum channel signal, and the difference channel processing unit is configured to produce an encoded digital difference channel signal in response to the digital difference channel signal.

90. (Previously Presented) A circuit for encoding digital left and digital right audio signals according to claim 89, wherein the digital matrix unit, the difference channel processing unit, and the sum channel processing unit are included on a single integrated circuit.

91. (Previously Presented) A circuit for encoding digital left and digital right audio signals according to claim 89, wherein the digital matrix unit, the difference channel processing unit, and the sum channel processing unit are implemented by a digital signal processor.

92. (Previously Presented) A circuit for producing a digital composite modulated BTSC signal, comprising a matrix unit configured to produce a digital sum signal and a digital

difference signal, a digital sum channel processing unit configured to produce a conditioned digital sum signal in response to the digital sum signal, and a digital difference channel processing unit conditioned to produce an encoded digital difference signal in response to the digital difference signal, and a digital modulator unit configured to produce a composite modulated signal in response to the encoded digital difference signal and the conditioned digital sum signal.

93. (Previously Presented) A circuit for producing a digital composite modulated BTSC signal according to claim 92, wherein the digital modulator unit is configured to modulate the encoded digital difference signal at a frequency substantially equal to 31,468 Hz.

94. (Withdrawn) A method of providing filter coefficients in a digital adaptive signal weighting system responsive in accordance with the BTSC standard, comprising:

calculating and electronically storing said filter coefficients, and

retrieving the filter coefficients for use in calculating the filter response of said digital adaptive signal weighting system.

95. (Withdrawn) The method of providing filter coefficients according to Claim 94, further including using said filter coefficients to set the filter characteristics of a variable emphasis unit of the digital adaptive signal weighting system.

96. (Withdrawn) The method of providing filter coefficients according to Claim 95, further including retrieving said filter coefficients for use according to the logarithm of the output signal of the digital adaptive weighting system.

97. (Withdrawn) The method of providing inverse square root values for use in a digital adaptive signal weighting system responsive in accordance with the BTSC standard, comprising calculating and electronically storing said inverse square root values, and retrieving the inverse square root values and using the square root values to set the gain of a wideband gain control unit of the digital adaptive signal weighing system.

98. (Withdrawn) A method of setting the gain of a wideband compression unit in a digital adaptive signal weighting system responsive in accordance with the BTSC standard, comprising:

calculating and electronically storing values representative of one of an input signal and an output signal, and

selecting and retrieving a particular stored value as a function of the value of an input signal where stored values represent an output signal, and as a function of the value of an output signal where stored values represent an input signal.

99. (Withdrawn) A digital filter disposed in the sum channel signal path of an adaptive signal weighting system according to the BTSC standard, said filter having a passband that includes a substantial portion of the frequency range from 50Hz to 15kHz, and having a null or notch characteristic configured to pass relatively little signal energy at 15.734 kHz compared to nearby frequencies.

100. (Withdrawn) A digital filter disposed in the sum channel path of an adaptive signal weighting system according to claim 99, wherein said filter is in the form of a lowpass filter with a passband that includes a substantial portion of the frequency range from DC to 15 kHz.

101. (Withdrawn) A digital adaptive signal weighting system which accepts one or more digital input signals and modifies their electrical characteristics according to the BTSC standard to produce one or more digital output signals.

102. (Withdrawn) A digital adaptive signal weighting system according to Claim 101, wherein the input signal is a composite signal comprising one or more digital audio signals.

103. (Withdrawn) A digital adaptive signal weighting system according to Claim 101, wherein the output signal is a composite signal comprising one or more digital audio signals.

104. (Previously Presented) A digital signal processor comprising:

(a) an input section configured to receive one or more digital signals and derive therefrom a digital sum signal and a digital difference signal;

(b) a digital difference channel section comprising (i) an adaptive signal weighting system configured to dynamically vary the amplitude and phase of the digital difference signal, and (ii) a frequency shifting system configured to alter the frequency of the digital difference signal according to the BTSC standard to produce a modified digital difference signal;

(c) a digital sum channel section comprising one or more digital filters for altering the amplitude and phase of the digital sum signal according to the BTSC standard so as to produce a modified digital sum signal, and

(d) an output section configured to combine the modified digital difference signal and modified digital sum signal and subsequently form one or more digital output signals.

105. (Previously Presented) A digital signal processor according to Claim 104, wherein said frequency shifting system is configured to alter the frequency of the digital difference signal by substantially 31.468 kHz.

106. (Previously Presented) A digital signal processor comprising

(a) an input section configured to receive one or more digital signals and derive therefrom a digital sum signal and digital difference signal;

(b) a digital difference channel section comprising (i) an adaptive signal weighting system configured to dynamically vary the amplitude and phase of the digital difference signal, and (ii) a multiplier system configured to alter the frequency of the digital difference signal according to the BTSC standard to produce a modified digital difference signal;

(c) a digital sum channel section comprising one or more digital filters for altering the frequency and phase of said digital sum signal according to the BTSC standard to produce a modified digital sum signal; and

(d) an output section for combining said modified digital difference signal and modified digital sum signal to form one or more digital output signals.

107. (Previously Presented) A method of generating digital audio signals according to the BTSC standard comprising:

a) accepting one or more digital audio input signals,

b) performing a frequency translation of at least one digital audio signal to form at least one modified digital audio signal, and

c) modifying the amplitude and phase of at least one of the digital audio signals according to the BTSC standard so as to create one or more corresponding digital audio output signals according to such standard.

108. (Previously Presented) A method of generating digital audio signals according to Claim 107, wherein performing the frequency translation of the least one digital audio signal includes performing the frequency translation by substantially 31.468 kHz.

109. (Previously Presented) A digital signal processor comprising

a) an input section configured to receive one or more digital input signals;

b) a sum-channel processing section for creating and conditioning a sum-channel signal according to the BTSC standard from the digital input signals;

c) a difference-channel processing section for creating and filtering a difference-channel signal according to the BTSC standard from said digital input signals; and

d) a combining section for transforming the sum-channel signal and the difference-channel signal into one or more output signals according to the BTSC standard.

110. (Currently Amended) A method of generating one or more digital output signals according to the BTSC standard, comprising:

filtering a digital signal including sum-channel information so as to create a digital sum-channel signal according to the BTSC standard[[,]];

filtering a digital signal including difference-channel information so as to create a difference-channel signal according to the BTSC standard; and

combining the sum-channel signal and the difference-channel signal so as to form one or more digital output signals according to the BTSC standard.

111. (Previously Presented) A digital adaptive signal weighting system for use with a digital difference signal representing the difference between two stereophonic audio signals, comprising:

a first digital filter section configured to alter the gain and phase of the digital difference signal within a first select spectral region according to the BTSC standard; and

a second digital filter section configured to further alter the gain and phase of the digital difference signal within a second select spectral region including at least a part of the first select spectral region according to the BTSC standard.

112. (Previously Presented) A system for generating a broadcast television stereo signal from a left-channel signal and a right-channel signal, comprising:

a signal combiner arrangement configured so as to generate a summation signal comprising the sum of a right digital signal and a left digital signal, and generate a difference signal comprising the difference between the right digital signal and the left digital signal;

a sum and difference signal generator arrangement configured so as to generate a first pre-emphasized digital signal as a function of the summation signal, and a second pre-emphasized digital signal as a function of the difference signal;

a signal transformation arrangement configured so as to transform the first pre-emphasized digital signal to a digital BTSC compliant L+R signal, and transform the second pre-emphasized digital signal to a digital BTSC compliant L-R signal; and

a composite signal generator arrangement configured so as to generate a digital composite signal as a function of the combination of the digital BTSC compliant L+R signal and a modulated version of the digital BTSC compliant L-R signal.

113. (Currently Amended) A method of generating a broadcast television stereo signal from a left-channel signal and a right-channel signal, comprising:

generating a summation signal comprising the sum of a right digital signal and a left digital signal, and generating a difference signal comprising the difference between the right digital signal and the left digital signal;

generating a first pre-emphasized digital signal as a function of the summation signal, and generating a second pre-emphasized digital signal as a function of the difference signal;

transforming the first pre-emphasized digital signal to a digital BTSC compliant L+R signal and transforming the second pre-emphasized digital signal to a digital BTSC compliant L-R signal; and

generating a digital composite signal as a function of a combination of the digital BTSC compliant L+R signal and a modulated version of the digital BTSC compliant L-R signal.

114. (Previously Presented) A system for generating a broadcast television stereo signal from a left digital signal and a right digital signal, comprising:

(a) circuitry that generates a summation signal comprising the sum of the right digital signal and the left digital signal, and a difference signal comprising the difference between the right digital signal and the left digital signal;

(b) preemphasis circuitry that generates a first digitally pre-emphasized signal corresponding to the summation signal, and a second digitally pre-emphasized signal corresponding to the difference signal; and

(c) transforming circuitry that transforms the first pre-emphasized signal to a digital BTSC L+R signal and that transforms the pre-emphasized second signal to a digital BTSC L-R signal.

115. (Previously Presented) A system for producing a digital composite modulated BTSC signal according to claim 87, wherein the digital composite modulator is arranged to generate the digital composite modulated BTSC signal responsively to and as a function of the BTSC encoded signal.

116. (Previously Presented) The digital signal processor according to claim 104, wherein the digital output signals are encoded in accordance with the BTSC standard.

117. (Previously Presented) The digital signal processor according to claim 106, wherein the digital output signals are BTSC encoded digital output signals.

118. (Previously Presented) The method according to claim 107, wherein the digital audio output signal is a BTSC encoded digital audio output signal.

119. (Previously Presented) The digital signal processor according to claim 109, wherein the digital output signals are BTSC encoded output signals.

120. (Previously Presented) The digital adaptive signal weighting system according to claim 111, wherein the first and second digital filter sections are configured as a part of an encoder.